CLAIMS

What is claimed is:

1. A system for unobtrusively detecting a subject's level of interest in media content, comprising:

means for detecting to what a subject is attending;

means for measuring a subject's relative arousal level; and

means for combining information regarding said subject's arousal level and attention to infer a level of interest.

2. The system according to claim 1, wherein said detecting means includes means for determining a target to which a gaze of the subject is directed.

3. The system according to claim 2, wherein said determining means further includes means for determining a duration of fixation time of said gaze.

4. The system according to claim 3, wherein said measuring means includes means for determining whether the subject is attending to the media content.

5. The system according to claim 4, wherein said measuring means further includes means for measuring the subject's facial gestures.

6. The system according to claim 5, wherein said measuring means further includes means for measuring the subject's head gestures.

7. The system according to claim 6, wherein said measuring means further includes means for measuring the subject's speech.

8. The system according to claim 1, wherein said measuring means includes means for measuring the subject's facial gestures.

9. The system according to claim 1, wherein said measuring means includes means for measuring the subject's head gestures.

10. The system according to claim 1, wherein said measuring means includes means for measuring the subject's speech.

11. The system according to claim 1, wherein said level of interest produced provides relevance feedback associated with said subject to a manager of said media content.

12. A system for unobtrusively detecting an object of a subject's interest in media content, comprising:

means for detecting the object to which the subject is attending;

means for measuring the subject's relative arousal level; and

means for combining information regarding said subject's arousal level and attention to infer the object of interest.

13. The system according to claim 12, wherein said detecting means includes means for determining a target to which a gaze of the subject is directed.

14. The system according to claim 13, wherein said determining means further includes means for determining a duration of fixation time of said gaze.

15. The system according to claim 14, wherein said measuring means includes means for determining whether the subject is attending to the media content.

16. The system according to claim 15, wherein said measuring means further includes means for measuring the subject's facial gestures.

17. The system according to claim 16, wherein said measuring means further includes means for measuring the subject's head gestures.

18. The system according to claim 17, wherein said measuring means

further includes means for measuring the subject's speech.

19. The system according to claim 12, wherein said measuring means includes means for measuring the subject's facial gestures.

20. The system according to claim 12, wherein said measuring means includes means for measuring the subject's head gestures.

21. The system according to claim 12, wherein said measuring means includes means for measuring the subject's speech.

22. The system according to claim 12, wherein said level of interest produced provides relevance feedback associated with said subject to a manager of said media content.

23. A method of unobtrusively detecting a subject's level of interest in media content, comprising:

detecting to what a subject is attending;

measuring a subject's relative arousal level; and

combining information regarding said subject's arousal level and attention to infer a level of interest.

24. The method according to claim 23, wherein said detecting includes

determining a target to which a gaze of the subject is directed.

25. The method according to claim 24, wherein said determining further includes determining a duration of fixation time of said gaze.

26. The method according to claim 25, wherein said measuring includes determining whether the subject is attending to the target information.

27. The method according to claim 26, wherein said measuring further includes measuring the subject's facial gestures.

28. The method according to claim 27, wherein said measuring further includes measuring the subject's head gestures.

29. The method according to claim 28, wherein said measuring further includes measuring the subject's speech.

30. The method according to claim 23, wherein said measuring includes measuring the subject's facial gestures.

31. The method according to claim 23, wherein said measuring includes measuring the subject's head gestures.

32. The method according to claim 23, wherein said measuring includes measuring the subject's speech.

33. The method according to claim 23, wherein said level of interest produced provides relevance feedback associated with said subject to a manager of said media content.

34. A method of unobtrusively detecting the object of a subject's interest in media content, comprising:

detecting the object the subject is attending;

measuring the subject's relative arousal level; and

combining information regarding the subject's arousal level and attention to infer the object of interest.

35. The method according to claim 34, wherein said detecting includes determining a target to which a gaze of the subject is directed.

36. The method according to claim 35, wherein said determining further includes determining a duration of fixation time of said gaze.

37. The method according to claim 36, wherein said measuring includes determining whether the subject is attending to the target information.

38. The method according to claim 37, wherein said measuring further includes measuring the subject's facial gestures.

39. The method according to claim 38, wherein said measuring further includes measuring the subject's head gestures.

40. The method according to claim 39, wherein said measuring further includes measuring the subject's speech.

41. The method according to claim 34, wherein said measuring includes measuring the subject's facial gestures.

42. The method according to claim 34, wherein said measuring includes measuring the subject's head gestures.

43. The method according to claim 34, wherein said measuring includes measuring the subject's speech.

44. The method according to claim 34, wherein said level of interest produced provides relevance feedback associated with said subject.

45. A method for detecting a person's level of interest in media content, comprising:

assessing whether a person is attending to the media content, to produce first data;

assessing a person's relative arousal level with regard to the media content, to produce second data;

combining said first and second data to infer a level of interest the person has in said media content; and

communicating said level of interest as feedback about the media content to a manager of said media content.

46. The method according to claim 45, wherein said assessing includes determining a target to which a gaze of the person is directed.

47. The method according to claim 46, wherein said assessing further includes determining a duration of fixation time of said gaze.

48. The method according to claim 45, wherein said assessing includes determining whether the person is attending to the media content.

49. The method according to claim 45, wherein said assessing includes measuring a person's facial gestures.

50. The method according to claim 45, wherein said assessing includes measuring the person's head gestures.

51. The method according to claim 45, wherein said assessing includes measuring the subject's speech.

52. The method according to claim 45, wherein said level of interest produced provides relevance feedback associated with said subject.

53. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for computer-implemented unobtrusive detection of a subject's level of interest in media content, said method comprising:

detecting to what a subject is attending;

measuring a subject's relative arousal level; and

combining information regarding said subject's arousal level and attention to infer a level of interest.

54. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for computer-implemented unobtrusive detection of a subject's level of interest in media content, said method comprising:

assessing whether a subject is attending to the media content, to produce first data;

assessing a subject's relative arousal level with regard to the media

content, to produce second data;

combining said first and second data to infer a level of interest the subject has in said media content; and

communicating said level of interest as feedback about the media content to a manager of said media content.

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